

Maintenance to do on next Maintenance Day

Water Phase Transition Checks and Repairs

Do all checks first. If repair can be done by one person go ahead otherwise save repair for end with help from another person.

Corrector Power Supplies: See Table below

1. Check for broken fans in corrector racks
2. Do more measurements in alcoves with PK with correctors at 25A.

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done-What was found	Serial Number
Yi3-th13-ps	Tripped to the OFF state 5/1/03		
Yo4-th20-ps	One broken fan.		
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Don't touch it yet.	Was not touched.	

Magnet Work – Rich Meier - Done

Ceramic Feedthrough cleaning in sector 3 where ground fault was found.

Spin Rotator p.s. OFF problem and other work – Gregg, Mitch, Rich K.

1. Label the rest of the circuit breakers in alcove 3C.
2. Re-label DC cables of rotators in 5C, 7A, 7C, 9A.
3. Swap out or rework 3u control chassis for bi5-rot3-1.4-ps and bi5-rot3-2.3-ps. These are not tripping OFF but have not been touched yet.

Sextupole P.S.'s

1. Run all up to 30A and look for trips.

1004B Q6 and Q7 Time Constant Work

More measurements, maybe.

IR Power Supplies

1. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this.
2. Possibly swap out firing card of y8-dh0-ps..
3. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b.
4. Put main p.s. filter material in rear doors of tq racks.
5. Replace harness of b2-dhx because of glitches on error.
6. bi8-tq5-ps, swap out Ireg card because on 4/24/03 between 7:21 and 8:35 MCR could not get current output until they went to the OFF state and back to STBY, then ON. The problem could also be a f.o. card but I think it may be the I reg card.
7. Re-label all q89 time constants so they say "q89/qd9".

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done)

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A.

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b.
2. Check light control chassis at 10A because no green lights work.
3. Check green light above blue valve box in 1002B.
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed.

Sector 9 Lead Flow Temp Experiments

George and cryo.- next time.

ATR Power Supplies

1. Run X-ARC90 in voltage mode.
2. Test SWM p.s. setpoint buffer.
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon.
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights.
6. **Test input Module at 1000P**

Maintenance Performed on 5/1/03

Water Phase Transition Checks and Repairs

Rich C, Tom and Joe.

1. I-02Q20 – Replaced thermostat. - **Done**
2. O-07Q7 and O-07Q13, checked and were fine. - **Done**

Magnet Work – Rich Meier - **Done**

Ceramic Feedthrough cleaning in sector 3 where ground fault was found.

Spin Rotator p.s. OFF problem and other work – Gregg, Mitch, Rich K.

4. Alcove 5C yo5-rot3-2.3-ps control chassis to be replaced. - **Done**
5. Swap DC cables on the rear of the rotator p.s.'s in alcoves 5C and 7A.- **Done**
6. Label the rest of the circuit breakers. **ONLY 3C Left**
7. Re-label DC cables of rotators in 5C, 7A, 7C, 9A – **Not Done**

Main Power Supplies- Carl and Fred

Connect new reference to 720Hz chassis.- **Done**

Quench Detectors

Restart after Carl is done with 720Hz chassis work. – **No Need to do, they did not go down.**

Sextupole P.S.'s

2. Bring up to 10A for 10min, re-train. – **No Need to do**
3. Run all up to 30A and look for trips. – **Not Done**

Check current regulator cards of bo3-qf6-ps and vo4-qf6-ps –**Done**

Test input Module at 1000P-Don – **Not Done**

Corrector vo1-tv13-ps was swapped out (trpped to OFF state). Brian and Gene
Removed serial number 193 and installed serial number 066

Bo3-qd3-ps Fiber optic interface card

Swapped out because of I/O difference error.

Yi10-qd2-ps

Swapped out node card cable because of status problem.

Quench Detector Work for snakes and rotators

Thresholds lowered and new ramp rates for p.s.'s given to MCR.

Corrector Power Supplies: See Table below –Leave for next time.

1. Check for broken fans in corrector racks
2. Do more measurements in alcoves with PK with correctors at 25A.

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done-What was found	Serial Number
Yo4-th20-ps	One broken fan. Leave for next time.		
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Don't touch it yet.	Was not touched.	

None of the rest that follows was done.

1004B Q6 and Q7 Time Constant Work

More measurements, maybe.

IR Power Supplies

1. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this.
2. Possibly swap out firing card of y8-dh0-ps..
3. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b.
4. Put main p.s. filter material in rear doors of tq racks.
5. Replace harness of b2-dhx because of glitches on error.
6. Swap fiber optic interface card for bo3-qd3-ps for A1. I/O difference problem. Give this card to Phil. Wait and see if this fixes problem.
7. bi8-tq5-ps, swap out Ireg card because on 4/24/03 between 7:21 and 8:35 MCR could not get current output until they went to the OFF state and back to STBY, then ON. The problem could also be a f.o. card but I think it may be the I reg card.
8. Re-label all q89 time constants so they say”q89/qd9”.

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done)

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A.

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b.
2. Check light control chassis at 10A because no green lights work.
3. Check green light above blue valve box in 1002B.
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed.

Sector 9 Lead Flow Temp Experiments

George and cryo.- next time.

ATR Power Supplies

1. Run X-ARC90 in voltage mode.
2. Test SWM p.s. setpoint buffer.
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon.
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights.

Maintenance performed on 4/23/03

Ice Ball Checks and Repairs-Rich C, Mitch, Jeff

1. O-09Q8 needs to have 120VAC wires for heaters looked at closely and possibly repaired because they may have been chaffed by the fan bracket. **Wires were checked and no wire dressing required.**
2. Go back and double check I-02Q9, looked ok last time. **It was worse this week with condensation on the voltage tap box so we de-iced it for now. Heater was working.**
3. Tape down more fans if there is time and people. **We glued down approx. another 20 floor fans but did not have sufficient time to get any more done.**
4. I-08Q3 - Lower tree had a lot of ice. Found one of the four heater wires loose. De-iced and tightened.
5. O-9WTCQ3 - This is a pipe going up in what Rich thinks is a crossover next to gate 9GI10. Wing had complained about this thermostat not cycling. After much investigation Mitch and Rich believe it to be normal. George and Wing originally asked for the thermostat to be replaced but for now they / we are just going to watch it.
6. I-10Q7 - Was very well frosted so we de-iced it for now. The heater was working.
7. I-02Q20 - Frosted up. Thermostat open. We bypassed the thermostat for now. Insufficient time to replace it.
8. O-07Q7 and O-07Q13, marginal, check next week.

Yo9-snk7-2.3-qp to qpaic cable

Yo9-snk7-2.3-qp qpa to qpaic cable was removed from the qpaic end so a bypass could be plugged in to the qpaic, port 5B. The p.s. should stay in the OFF state.

Corrector Power Supplies: See Table below

1. With all the correctors on at 25A PK measured the line voltage in alcove 7C to be 202Vrms. When all of the p.s.'s in 7C were in STBY the line voltage was 204Vrms. Before PK raised the tap the voltage measured 199Vrms with all of the correctors in STBY.

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done-What was found	Serial Number
Bo7-th6-ps Alcove 7C	Has a broken fan. If we are in good shape with spares we may think about replacing this one.	This p.s. was replaced.	097 in 021 out
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Don't touch it yet.	Was not touched.	

Magnet Work

Ceramic Feedthrough cleaning in sector 3 where ground fault was found. -Done

1004B Q6 and Q7 Time Constant Work

More measurements were done and all Q7 time constants are the same now. Still work to do with Q6's.

Q89 Time Constant Work

All q89 time constants replaced with improved version that reduces the noise we see on the error signal.

Spin Rotator p.s. OFF problem and other work

1. Alcove 7C 3u chassis were removed and re-worked.
2. Label the rest of the circuit breakers.-NOT DONE

IR Power Supplies

1. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this. **-NOT DONE.**
2. Possibly swap out firing card of y8-dh0-ps. **-NOT DONE.**
3. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b. **-NOT DONE.**
4. Put main p.s. filter material in rear doors of tq racks. **-NOT DONE.**
5. Replace harness of b2-dhx because of glitches on error. **-NOT DONE.**
6. bi8-tq4-ps error seems unusually low, replace buffer card. Current reg card was swapped out and did nothing. **Fixed, Lemo connector was not connected well in the MADC patch panel**
7. Swap fiber optic interface card for bo3-qd3-ps for Al. I/O difference problem. Give this card to Phil. Wait and see if this fixes problem. **-NOT DONE**

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **NOT DONE.**

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **NOT DONE.**

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b. **NOT DONE.**
2. Check light control chassis at 10A because no green lights work. **NOT DONE.**
3. Check green light above blue valve box in 1002B. **NOT DONE.**
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. **NOT DONE.**

Sector 9 Lead Flow Temp Experiments

George and cryo.- **some done.**

Bi9-snk7-2.3

Fix gas cooled lead polarity at quench detector-PAUL **DONE.**

Maintenance Performed on 4/16/03-4/17/03

Ice Ball Checks & Repairs

1. Glued down floor fans in many locations but not all.
2. Installed fan on I7Q9D8.
3. Replaced a thermostat that was bypassed on O-08Q11.
4. Installed a fan on O-09Q8.
5. Re-positioned thermostat on I-10D8Q9. Was installed in wrong position.
6. I-O2Q9 looked fine.

1004B Q6 and Q7 Time Constant Work

Did some measurements

Q89 Time Constant Work

Tested higher BW card. Looked good.

PK Alcove Corrector AC Measurements

PK measured the AC voltage of all the alcoves with the correctors in STBY. He raised the tap in the sub for alcove 7C. See his spreadsheet filename "Alcove rack voltages 4 17 03.xls" for details.

See next page for more

Corrector Power Supplies: See Table below

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done-What was found	Serial Number
Yi3-th13-ps	Tripped on error fault a few times then stopped. Voltage and current look very noisy. Check AC and DC connections but don't swap out p.s. unless you find something wrong in the tunnel	AC 208 term previously 3/3 snugged. DC snugged. Ramped up/dwn with no errors. Left overnight parked at +30amps. Still ON! See NOTE 3	
Bi4-th7-ps	Tripped on overvoltage a few times. Check AC and DC connections. Swap out p.s. if nothing is found to be loose.	Snugged loose AC 208 (half turns). Snugged DC. No failures. Ramped 4/17 A.M. got error. Replaced PS. See NOTE 1.	273 in 447 out
Bi8-th12-ps	Tripped to OFF state. Replace with p.s. that has new micro and R and C mod.	Previous CAS replaced	
Bo7-tv13-ps (Coordinate with electricians)	Trips on error signal. Go down with electrician and check AC connections in panel. Check our AC and DC connections at p.s. and magnets. Is AC cable good between AC terminal block and p.s? Swap out if you cannot find anything wrong..	Found overtemp and error. Overtmps clear. Snugged AC & DC. Ramps fine. Parked at +30amps overnight, error in the wee small hours. Replaced PS. DC load is 0.3 ohms, 10k ohms to gnd w/ps connected. See NOTE 2. See NOTE 3.	072 in 210 out
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Don't touch it yet.	No action	

NOTES(from Brian):

- 1: On FEC pet page see on ps.watch line, "Wfg Reference Range Error".
- 2: Electrical AC breaker panel inspection by Bubby and PK Feng. Opened panel, checked voltages. Read feed at 199VAC. Had tap moved on substation, raised to 204VAC. 120Vac power strip 114VAC, affects only node card and low resolution chassis.
- 3: Found FEC ramp rate set at 1 SECOND on both PS's. This rate will cause an error in many cases. I have set a maximum rate of 10 seconds as a maximum for alcove testing. I will try to induce errors at 5 seconds if required. Often good supplies/magnets error at 5 seconds.
- 4: bo7-th6 , R7C5 has one dead cooling fan. WE HAVE TO ORDER SPARES. The spares on hand (for 150's or Dynapowers??) that I've seen have a higher current drain than the 50amp correctors

Magnet Work

Ceramic Feedthrough cleaning in sector 3 where ground fault was found.-Done

Tq QPAIC in 1010A-Check J24

We may replace this cable – do not replace cable, it looks like replacing permit module fixed problem.-Not Done, removing from the list.

Permit Bypass Chassis in 1008B

Wing & Someone need to check it out. Readback doesn't look right-there is a hardware problem but it works so we will take it off this list and put it on shutdown 03 list.

Spin Rotator p.s. OFF problem and other work

1. We may need to work in alcoves 5C, 7A, 7C and 9A if rotator OFF problem returns. The p.s.'s are yo5-rot3-1.4-ps, bo6-rot3-1.4-ps, yi6-rot3-2.3-ps, yi7-rot3-2.3-ps, and yo8-rot3-2.3-ps. we may need a short 15 minute access before the next maintenance day if the problem returns to connect some node card cables. See document saved as "RotatorOFFproblem4x10x03.doc" for details. These supplies never tripped OFF again. They were not touched.
2. Label the rest of the circuit breakers. Not Done
3. yi6-rot3-1.4-ps tripped OFF 4/14/03. This chassis was removed, reworked molex connectors and re-installed.
4. yi6-rot3-2.3-ps low res card should be replaced because of I/O diff errors. This card was replaced and so far I/O differences have not returned.
5. yo5-rot3-2.3 had an overvoltage on the power ten p.s. which would not allow any current on output of p.s. Went to Off and problem was cleared.
6. Alcoves that are done having their 3u chassis removed and molex connectors reworked are 7A and 9A. Found bad 5V molex crimp (1 strand on), another had a bad AC crimp (crimed on wire instead of insulation), another had a bad neutral crimp.

Snake Magnet Problems and P.S. work done

1. Yo9-snk7-2.3 magnet opened. P.S. is not being used. Ground current alarm is disabled.
2. Yo9-snk7-1.4-ps DC leads reversed at p.s. to compensate for not having yo9-snk7-2.3 magnet.
3. Bi9-snk7-2.3 magnet found to have resistive shorts to ground. Removed wire from RC ground current monitor network to center tap of resistor in QPA. Ground current alarm is disabled.
4. Bo6-rot3-1.4-ps had D connector disconnected from QPA for ground current monitor. Ground current alarm is disabled.
5. All ground current monitors were checked through to the pet page level. See filename "Ground Current Readings.xls" for details.

IR Power Supplies

1. Remove resistor packs in yi10-q89-qp and bi9-q89-qp and replace both with original resistor packs. **-Done**
2. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this. **-Not Done**
3. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Looked at yo9-tq4, 5, 6. yi10-tq4, 5, 6 and bo10-tq4. Only yo9-tq4-ps was shorted. **Yo9-tq4 has been swapped out. Removing from the list.**
4. Possibly swap out firing card of y8-dh0-ps. **Not Done**
5. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b. **Not Done**
6. Replace broken fans in b12-q7, b12-dh0, yo4-qd7 and y-qtrim. All had one bad fan in the rear DC compartment. **Done**
9. Put main p.s. filter material in rear doors of tq racks. **-Not Done**
10. Swap out fiber optic card for b2-dhx and see if glitches in error go away. We may want to look on the front of the p.s. to make sure this is real first. **-Done but didn't fix problem.**
11. bi8-tq4-ps error seems unusually low, we may want to swap out the current regulator card. Think about. **-Done, but error still low.**

OPA Work

2. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **Not Done.**

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **Not Done**

Valve Box Work

5. Need to replace flashers at top of valve boxes for 2b and 6b.
6. Check light control chassis at 10A because no green lights work.
7. Check green light above blue valve box in 1002B.
8. Light control chassis in 1008B needs to be fixed. Opto logic is reversed.

Sector 9 Lead Flow Temp Experiments

Some of this was done.

ATR Power Supplies

6. Run X-ARC90 in voltage mode. **Not done.**
7. Test SWM p.s. setpoint buffer. **Not done.**
8. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon. **Not done.**
9. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
10. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights. **Not done.**

Maintenance Performed on 4/9/03

Ice Ball Checks and Repairs

Heater of O-01Q18 was half dead so it was replaced.

Q89 time constants

Zero crossing problem improved. I think we may still want to try and increase BW.

Spin Rotator OFF problems

Alcove 5C-yo5-rot3-1.4-ps was worked on.

Alcove 7A-bo6-rot3-1.4-ps was worked on.

Alcove 7A-yi6-rot3-2.3-ps was worked on.

Alcove 7C-yi7-rot3-2.3-ps was worked on.

Alcove 9A-yo8-rot3-2.3-ps was worked on.

See document saved as RotatorOFFproblem4x10x03.doc for details.

If the problem returns we will have to go back to these alcoves and p.s.'s. We may also require a short 15 minute access before that to connect some node card cables before the next maintenance day in alcoves 5C, 7C and 9A if the problem returns.

Cryo-Corrector Temperature Measurements

Some of these measurements were done.

Corrector P.S. Work

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done- What was found	Serial Number
Yo7-dod3-ps [7C]	Shows up as STBY-ERROR yet it is on. Do we want to swap out node card cable or the whole node card? This is the same node card that had other p.s.'s doing this. Each time we replace a cable for a p.s. it fixes the problem and then another one pops up.	Replaced entire node card-returned old one to 911 for analysis. DC connections snugged at magnet. 1/4 to 1/2 turn loose.	
Bi5-oct3-ps [5C]	Tripped off once on 4/2. Swap out with a p.s. that has new micro and R and C mod..	208vac slightly loose. 208vac previously tightened 3-5-03. Hep alerted. DC connections snugged at magnet.	468 in 66 out

Noise into permit module Test

Wing did some tests to see if noise into permit module would cause it to trip and he found it did not. This was a follow up to problems we had with permit module bringing down link in 10A even though input was good. Wing also checked for other loose cables in 10A but did not find any.

Quench Detection Racks

10a-qd2 and 6b-qd2 ADC card jumpers enabling external +/- 15VDC and external fan failure monitoring were found to be incorrectly configured. Their jumpers were properly configured and proper configuration of all ADC jumpers in all dual bucket quench systems have been verified.

IR Power Supplies

1. Possibly remove bo3-tq6 and/r yi10-tq5 because they each tripped on FET faults once and we may want to examine one and see if any FET's are blown. Not Done and we probably won't do because a FET fault does not exist. It could be noise, a loose wire or a bad opto-coupler that caused the problem. **Remove from list**
2. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Looked at yo9-tq4, 5, 6. yi10-tq4, 5, 6 and bo10-tq4. Only yo9-tq4-ps was shorted. **Yo9-tq4 has been swapped out.**
3. Possibly swap out firing card of y8-dh0-ps. **Not Done**
4. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b. **Not Done**
5. Replace broken fans in b12-q7, b12-dh0, yo4-qd7 and y-qtrim. All had one bad fan in the rear DC compartment. **Not Done**
6. Put main p.s. filter material in rear doors of tq racks. **Not Done**
2. Keep an eye on y12-dh0 (OFF problem) and y6-dh0 (large voltage ripple and spike). Nothing to do as of now. Has not returned since March 17th when we replaced backplane. Don't touch. **Remove from list**
7. Keep an eye on yo4-qf2-ps. It caused a QLI on Sat 3/15/03 at 1:15 and Wed 3/19/03. It looks like the voltage spiked up on 3/15 and the p.s. started to oscillate on 3/19. Has not returned. Don't touch. **Remove from list.**
8. Swap out fiber optic card for b2-dhx and see if glitches in error go away. We may want to look on the front of the p.s. to make sure this is real first. **Not done.**
9. Remove resistor packs in yi10-q89-qp and bi9-q89-qp and replace both with new resistor packs. **Not done. Definitely do next time.**
10. bi8-tq4-ps error seems unusually low, we may want to swap out the current regulator card. Think about.

Tunnel Work

1. Tape down floor fans in the tunnel that cool magnet trees.

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **No Done.**

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **Not Done.**

Snake and Spin rotator p.s. Work

Label the rest of the circuit breakers.

Quench Detector

Go around and check quench detector fans are working - **Dan O-Done**

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b.
2. Check light control chassis at 10A because no green lights work.
3. Check green light above blue valve box in 1002B.
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed.

Sector 9 Lead Flow Temp Experiments

George and Cryo.

ATR Power Supplies

1. Run X-ARC90 in voltage mode. **Not done.**
2. Test SWM p.s. setpoint buffer. **Not done.**
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon. **Not done.**
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights. **Not done.**

Detailed Breakdown For 4/9/03

Correctors

1. **Brian and Gene** swap out node card in alcove 7C that feeds yo7-dod3-ps
2. **Brian and Gene** Swap out bi5-oct3-ps in alcove 5C because it trips off

Ice Ball Checks

1. **Rich Conte** checking Enter 4GE2 and check 4GI1 to 3GI1-bring repair bag and repair if simple otherwise get help.
2. **Jeff Wilke** checking 7GE1 to 3GI1
3. **Mitch** checking 8GE2 to 3GI1-bring repair bag and repair if simple otherwise get help.
4. Get **Bob Mac** to help with repairs if needed.

Alcove 5C Spin Rotators - Gregg and Rich K

1. Swap out complete 3u chassis and node card cable for yo5-rot3-1.4-ps

Alcove 7A Spin Rotators – Tom, Joe and Fred

1. Swap out complete 3u chassis for bo6-rot3-1.4-ps. (Did node card cable)
2. Swap out 3u chassis backplane of yi6-rot3-2.3-ps (Did node card cable)

Alcove 7C – Gregg and Rich K

1. Swap out 3u chassis backplane of yi7-rot3-2.3-ps and node card cable..

Alcove 9A– One of 2 other groups above or Ice Ball Teams when they are done

1. Swap out 3u chassis backplane of yo8-rot3-2.3-ps and node card cable.

Q89 Zero crossing problem

1. Don and help from Jim checking y6-q89
2. Ramping with new time constants in yi10-q89, bi9-q89 and b12-q89
3. In service buildings

Maintenance Performed on 4/2/03

Ice Ball Checks and Repairs

1. Found vertical portion of I-04Q9 not warm. Replaced heater. This was not an easy thing for one person to do. Would not suggest doing this solo any more unless there is an abundance of time.
2. I-07Q8 not working properly. Found heater working but not keeping up with the load. Installed a fan to help the heater.
3. Spin Rotator near 1007W with some ice on it. Found that the two thermostats were in series and only one of them was closed. Thermostat with red leads was jumpered out.
4. Replaced a thermostat on I6Q20.

1004B Q6 and Q7 Time Constant Work

Measured load, closed loop Vloop, and closed loop I loop of yo4-qf6-ps and yo4-qd7-ps

1004B Main p.s.'s Timing Resolver Work

Not done

Corrector Power Supplies: See Table below Done

1. Start checking corrector p.s. fans and rack fans since not many correctors to do.

Corrector P.S.	Problem On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done- What was found	Serial Number
Yo5-oct2-ps	Tripped off once on 2/5, 3/17, 3/25. Swap out with a p.s. that has new micro and R and C mod.	Swapped out PS- was not a REV 14. Tightened magnet terminals on magnet tree. Nothing was loose. AC connections were also tight.	87 removed, 495 installed
Yi7-sx3-ps	False readbacks, replace node card cable.	Node Card cable replaced	
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Don't touch it yet.		

Magnet Work

Ceramic Feedthrough cleaning in sector 3 where ground fault was found.

Done

Spin Rotator Magnet Heater Work

Paul needs to work on a snake thermostat-Done

Tq QPAIC in 1010A-Check J24

Not Done

4b-ps3

Wing needs to re-boot-**Done**

Permit Bypass Chassis in 1008B

Wing & Someone need to check it out, readback doesn't look right.-**Not Done**

Alcove UPS Work

Go into tunnel with PK and measure current draw on 110V panel that will go onto UPS-**Done**

Snake and Spin Rotator P.S. Work

1. This time swap out node card cables for bo6-rot3-1.4 and yi6-rot3-2.3 (They tripped OFF) and swap out Power Ten for yo5-rot3-2.3-ps (Quenches). **Done.**
2. Next time swap out node card cables for yi7-rot3-2.3-ps, yo8-rot3-2.3 and yo5-rot3-1.4 (They tripped OFF). **None of these 3 were done.**

IR Power Supplies

1. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this. **Not Done**
2. Possibly remove bo3-tq6 and/r yi10-tq5 because they each tripped on FET faults once and we may want to examine one and see if any FET's are blown. **Not Done and we probably won't do.**
3. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Looked at yo9-tq4, 5, 6. yi10-tq4, 5, 6 and bo10-tq4. Only yo9-tq4-ps was shorted. **Yo9-tq4 has been swapped out. Not Done**
4. Possibly swap out firing card of y8-dh0-ps. **Not Done**
5. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. Some done at 6b. **Not Done this time.**
6. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. **This was Done. Found b12-q7, b12-dh0, yo4-qd7 and y-qtrim all had one bad fan in the rear DC compartment.**
7. Put main p.s. filter material in rear doors of tq racks. **Not Done.**
8. Keep an eye on y12-dh0 (OFF problem) and y6-dh0 (large voltage ripple and spike). Nothing to do as of now. **Has not returned since March 17th when we replaced backplane.**
9. Keep an eye on yo4-qf2-ps. It caused a QLI on Sat 3/15/03 at 1:15 and Wed 3/19/03. It looks like the voltage spiked up on 3/15 and the p.s. started to oscillate on 3/19. **Has not returned**

Tunnel Work

1. Tape down floor fans in the tunnel that cool magnet trees. **Not Done.**

OPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **No One. Not Done.**

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **No One. Not Done.**

Snake and Spin rotator p.s. Work

Label the rest of the circuit breakers. **Not Done.**

Quench Detector

Go around and check quench detector fans are working - **Dan O, Not done.**

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b. **Not done.**
2. Check light control chassis at 10A because no green lights work. **Not done.**
3. Check green light above blue valve box in 1002B. **Not done.**
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. **Not done.**

Sector 9 Lead Flow Temp Experiments

George and Cryo. **Done and probably will need to do again.**

ATR Power Supplies

1. Run X-ARC90 in voltage mode. **Not done.**
2. Test SWM p.s. setpoint buffer. **Not done.**
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon. **Not done.**
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights. **Not done.**

Maintenance Performed on March 24th and March 25th

Primary Work

Ice Ball Repairs

Rich C and John Addressi

4-DX thermostat was replaced. IO2Q4 heater was working fine and the current was measured and found to be about 0.5A which is correct.

600A and 2000A Dynapower p.s. Contactors and Circuit Breakers

All cables to these p.s. were checked for tightness. One circuit breaker was found to need half a turn to tighten it. We checked these because of the contactor that burned up on b4-dhx on Saturday March 22, 2003

Q6 and Q7 Time Constant changes (32 cards to change, do blue Q6's and Q7's first and re-install then work on yellow Q6's and yellow Q7's)

Joe, Rich K, Gregg and Tom

All cards were changed but there were some problems at 1010A and 1004B because of the different load inductances and possibly different cable resistances. Don needs to work on the ones at 1004B. 1010A might be ok.

Blue dh0 DC cable reversal in Link Box

Mitch

Done and polarity checks were done too.

Blue dhx Fiber Optic Interface Card chip change and labeling

Don

Done.

Spares Locker-Relabel spare blue dhx fiber optic cards from non-inverting to inverting and change fiber optic card table on spares locker

Don

Done

Clean main power supply contactor for Main p.s.'s

Carl, Mitch (after he is done switching over blue dh0 cables)

Done, also found a ring loose on laminations of contactor. This was glued back on and now the contactor doesn't hum anymore.

Timing Resolver Work

Fred and Ken Hartmann and others

Start right away

Gene and Brian doing Modicon work after they are done with correctors

Most of the install was done.

Install new software for mains and testing

Done, but since main dipole doesn't go to 2000A Carl could not see if it worked.

Corrector p.s.'s

Gene and Brian

See below.

Corrector Power Supplies: See Table below Brain and Gene

1. If there is time and people start checking looking for broken corrector fans by checking all alcoves.

Corrector P.S.	Action (3/24/03) On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done- What was found	Serial Number
Yi7-oct3-ps	Indicates “no p.s.” sometimes yet is on. Replace node card cable. Low Priority.	Complaint could not be verified. Installed a new “old stock” node card cable. Note yi7-th3 (also in R7C4) had a new cable installed recently.	593 in R7C4
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority. We probably should not touch it at all. Think about this one.	NO action as per Don Bruno	
Yi2-tv18	Trips on error	CAS replaced	127 removed

Note R7C5 Low resolution chassis PSIF-7C-05 "Fan Fail" light is lit.

Inform CAS that yellow spares tag must be transferred from working spare to old failed unit. They may remove the other white/red tag and leave it with old unit to provide info.

Quench Detector – Load new database, test with new ramps

George, Johannes, Don, Wing, Carl

Done

Magnet Work

Ceramic Feedthrough cleaning in sector 3 where ground fault was found.

Ed Weigand and crew

Done

Spin Rotator Ramping and fixing Icing problem on spin and snake magnet trees

Paul, George, Ed Weigand and crew, others

Done but I think more may need to be done.

Snake and Spin Rotator Magnet Locations

1. There are snake magnets located near alcove 3C. Enter through gates 4GE1 or 4GE2 and make a left.
2. There are snake magnets located near alcove 9C. Enter through gate 10GE1 and make a left.
3. There are spin rotator magnets located near alcove 5C. Enter through gate 5GE1 and make a right.
4. There are spin rotator magnets located near alcove 7A. Enter through gate 6GE3 and make a left.
5. There are spin rotator magnets located near alcove 7C. Enter through gate 7GE1 and make a left.
6. There are spin rotator magnets located near alcove 9A. Enter through gate 8GE2 and make a left.

Secondary Work

IR Power Supplies

1. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this. **Not Done.**
2. Replace yo9-tq4-ps with a 150A that has good IGBT's and snubbers installed. **Jeff & Mitch-Done**
3. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Looked at yo9-tq4, 5, 6. yi10-tq4, 5, 6 and bo10-tq4. Only yo9-tq4-ps was shorted. **Not Done.**
4. Possibly swap out firing card of y8-dh0-ps. **Not Done**
5. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. **Brian and Gene, Some doen at 6b**
6. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. **Not Done.**
7. Put main p.s. filter material in rear doors of tq racks. **Not Done.**
8. Keep an eye on y12-dh0 (OFF problem) and y6-dh0 (large voltage ripple and spike). Nothing to do as of now.
9. Keep an eye on yo4-qf2-ps. It caused a QLI on Sat 3/15/03 at 1:15 and Wed 3/19/03. It looks like the voltage spiked up on 3/15 and the p.s. started to oscillate on 3/19.

Tunnel Work

1. Tape down floor fans in the tunnel that cool magnet trees. **Not Done.**

OPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **No One. Not Done.**

Gamma-T Power Supplies

Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **No One. Not Done.**

Snake and Spin rotator p.s. Work

1. Label the rest of the circuit breakers. **Someone. Not Done.**

Quench Detector

Go around and check quench detector fans are working - **Dan O ???????**

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b. **??????????**
2. Check light control chassis at 10A because no green lights work. **??????????**
3. Check green light above blue valve box in 1002B. **??????????**
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. **??????????**

ATR Power Supplies

1. Run X-ARC90 in voltage mode. **Not Done.**
2. Test SWM p.s. setpoint buffer. **Not Done.**
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon.. **Not Done.**
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Problem has not returned as of now.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights. **Not Done.**

Maintenance performed on 3/19/03

IR Power Supplies

1. O10Q2-Q3 thermostat was checked and looked good. O10Q8 investigation revealed that the breaker in panel PN11Q51 was tripped and a whole string of heaters were OFF. The heater on O10Q8 was replaced and the circuit breaker stayed ON. O3Q8 was checked and the heater was working. O4Q1Q2 heater was not On but then tuned on while we were checking it. 4-DX thermostat was bypassed and needs to be replaced. IO2Q4 heater was working fine. Keep an eye on this one.
2. Tape down floor fans in the tunnel that cool magnet trees. **NOT DONE.**
3. bo2-qd1-ps shows an AC phase flt when there is a QLI. If there is time take a look at this. **NOT DONE.**
4. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Looked at yo9-tq4, 5, 6. yi10-tq4, 5, 6 and bo10-tq4. Only yo9-tq4-ps was shorted. **NOT DONE.**
5. Replace yo9-tq4-ps with a 150A that has good IGBT's and snubbers installed. **NOT DONE.** Test good 150 in rack at 1010A and see if we can cause IGBT's to fail? **Tom and Jeff**
6. Remove new Q6 curr reg card in y12-q6 because relays are sticky. Original card is in 1012A cabinet. **Done and replaced.**
7. Adjust gain of new Q7 cards in y12-q7 and b12-q7 to reduce error and find limits. **NOT DONE.**
8. Possibly swap out firing card of y8-dh0-ps. **NOT DONE.**
9. Screw in more 3u chassis cards. 1012A done. Half of 1004B done and some of 1002B done. **NOT DONE.**
10. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. **NOT DONE.**
11. Put main p.s. filter material in rear doors of tq racks. **NOT DONE.**
12. Keep an eye on y12-dh0 (OFF problem) and y6-dh0 (large voltage ripple and spike). Nothing to do as of now. **Nothing done**
13. Keep an eye on yo4-qf2-ps. It caused a QLI on Sat 3/15/03 at 1:15. It looks like the voltage spiked up. **Checked tightness of AC and DC connections**

Magnet Work

1. Ceramic Feedthrough cleaning in sector 3 where ground fault was found. **Done**
2. Go into sector 9 on restricted access and look at cryo temperature monitoring. **Done**

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **NOT DONE..**

Gamma-T Power Supplies

1. Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **NOT DONE.**

Snake and Spin rotator p.s. Work

2. More p.s. testing to high current. Explore Ramp rates. **NOT DONE.**
3. Label the rest of the circuit breakers. **NOT DONE.**

Quench Detector

1. Go around and check quench detector fans are working - **?????**

Main p.s.'s – Blue dipole flattop contactor investigation - **FRED ORSATTI - Done**

Corrector Power Supplies: See Table below Brain and Gene

1. If there is time and people start checking looking for broken corrector fans by checking all alcoves.

Corrector P.S.	Action (3/19/03) On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done- What was found	Serial Number
Yi3-tv10	Tripped to the Off state 3 times 3/16/03. Replace with a p.s. that has new micro and R and C mod. If one is not available then just replace micro in this p.s.	468 had old rev. 183 has rev 14 rev14 and OFF SW r/c mod.	183 installed 468 removed
Yo8-tv11-ps	Tripped OFF on 3/17/03. This p.s. already has a new micro. Replace p.s. with one that has a new R and C and new micro. Check AC connections. Check DC connections.	276 had REV14 chip. 118 has rev14 and OFF SW r/c mod.	118 installed 276 removed
Yi2-tv4-ps	Does not show local on pet page when you put into Local. Investigate, possibly needs a new node card cable, try installing one, I think we have them in the trailer, check with Brian. Low priority	No time	
Yi7-oct3-ps	Indicates “no p.s.” sometimes yet is on. Replace node card cable. Low Priority.	No time	

Brian Notes: In alcove 9A, the Low Resolution chassis in R9A6 (PSIF-9A-06) the "Fan Fail" LED on the front panel is lit.

Cas pull Bo3-th12 on 3/17/03 is s/n 451

Ramp rate issue still not addressed at this time. Errors in ramping varied among the 2 ps's installed.

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b. ??????????
2. Check light control chassis at 10A because no green lights work. ??????????
3. Check green light above blue valve box in 1002B. ??????????
4. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. ??????????

ATR Power Supplies

1. Run X-ARC90 in voltage mode.
2. Test SWM p.s. setpoint buffer.
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon.
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced
9:50 Wed 3/5/03.
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix.
YARC90 phase sequence relay probably still good because LED lights.
6. Try ramping YARC90 with Costas, do we see spikes? **Done**

Maintenance Performed on 3/12/03

IR Power Supplies

1. Ice Ball Checks were done on 3/11/03. On 3/12/03 the thermostat that was replaced at O10Q15D15. O10Q2 had a thermostat mounted on it, it was connected electrically but not strapped to the tree properly. 11-DX heater had both conductors loose at O-11Q1 terminal strips. O12Q2 replaced thermostat. O-03Q21 replaced thermostat. I02Q4 has a heater that is not working, we mounted a fan on it for now. O-09Q10 replaced thermostat. O10Q8D8 heater current is only 0.23A, this means only half the heater is working, it needs to be replaced.
2. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. **Seven tq's were checked and one was found shorted, yo9-tq4-ps.**
3. Move new current regulator card from bi4-qd6-ps to y2-q6-ps because that p.s. runs up to 25A and I want to make sure this card is stable at higher currents. **Y2-q6 was stable with the new q6 current reg card. Then the new q6 curr reg card was moved to y12-q6 and it was stable there as well while the new y12-q7 and b12-q7 cards were being tested.**
4. Have a new current regulator card ready for q7 to reduce error. Maybe put new q6 card inside the new q7 at the same time. Test at 1012A. **y12-q7 and b12-q7 have 2 different current reg cards in them that were tested and are stable. There dynamic error is reduced by a little over 2 times. Next I will bring up gain until it becomes unstable so I know my limits.**
5. Remove voltmeter and clamps from b12-q7-qp qpa. **This was done.**
6. Screw in more 3u chassis cards. 1012A and 1004B were started. **Rich K finished half of 1004B and some of 1002B. Mitch finished all of 1012A**
7. Possibly swap out firing card of y8-dh0-ps. **Nothing was done here.**
8. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. **Did not get too.**
9. Gasket doors of tq racks in 1004B. **Done.**
10. Swap out current regulators and Time constant cards for yo4-qd3-ps (error=-760mV) and yo9-qd9-ps (error = 680mV). **Done**
11. y12-dh0-ps tripped to the Off state 3/8/03, swap out Control Card or hkps?. **Joe D and Gregg Control card and hkps swapped out.**
12. y6-dh0-ps tripped the link on 3/9/03. the voltage was oscillating and then took off. The same thing happened on 12/19/03. We re-seated housekeeping p.s. connectors and the problem did not return until now. Replace hkps this time. **Joe D and Gregg swapped out hkps.**

QPA Work

1. Start replacing all QPA D connector hardware?? (b2-dh0-qp, yo8-qf8-qp and yo8-qd1-qp done) **Nothing done.**

Gamma-T Power Supplies

1. Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. **Nothing done.**

Magnet Work

1. Ceramic Feedthrough cleaning in sector 3 where ground fault was found. This was done Tues 3/11/03

Snake and Spin rotator p.s. Work

1. More p.s. testing to high current. **I think this is done.**
2. Label the rest of the circuit breakers. **Not done.**
3. Replace DAC for bi9=snk7-1.4-ps and make sure setpoint has a small positive offset at zero. Also make sure p.s. still runs up properly. **Done**
4. Try and have a new time constant ready for spin rotators and/or go check snakes and rotators with a small step input and compare response. **Done – switched over from resistive load time constants to inductive load time constants and that fixed the overshoot and high error problems Wing was seeing.**

Quench Detector

1. 4b QD 5v QL bypass p.s.'s hooked up to UPS.
2. 4b qd1 ac cord bad, it was replaced.
3. 4b qd aux chassis p.s. burned up and replaced. This was a 12v p.s. for a fan. Jumper not set correctly so when the fan failed it was not reported back. This jumper was set up correctly now. All other quench detectors will be checked for this jumper setting by Dan O next time.

Corrector Power Supplies: See Table below Brain and Gene

1. If there is time and people start checking looking for broken corrector fans by checking all alcoves.

Corrector P.S.	Action (3/12/03) On all of these check AC connections and DC connections at the magnet and power supply.	Comments – What was really done- What was found	Serial Number
Bo2-th6-ps	Indicates STBY-ERROR yet the p.s. is ON. Replace node card cable and inspect node card chips that were replaced. This p.s. also indicated Overvoltage once that may have been due to a quench. Check tightness of all DC and AC connections. Especially DC. Do not replace p.s. Record what was loose and tightened.	Loose magnet connections (1 full turn). Node cable changed-	
Bi8-tv10-ps	Tripped OFF. Replace micro since a p.s. with R and C mod is not available.	Replaced micro-No Off sw r/c mod. Tightened AC connections only we think.	335
Yi3-tv16-ps	Trips on ERROR fault. The current and voltage takes off while the setpoint stays at zero. Swap out complete p.s. with one that has new micro and if possible R and cap mod. Check all AC connections and DC connections at the p.s. and magnets too. Loose AC or DC connections could cause this problem as well. See one trip 3/6/03 07:26, many others on 3/6/03.	Tighten all magnet connections. Old supply s/n 130 had errors at high ramp rates. New supply same. Burning smell in alcove, cannot locate source.	130
Yi3-tv16-ps	Gregg and Mitch went down later on this day to swap out this p.s. again because it was tripping on an error and Overtemp.		466
Yo4-th12-ps	Tripped OFF on 3/2/03. Replace micro since a p.s. with R and C mod is not available.	Already REV 14 No action taken	163
Yo8-dod3-ps	Tripped OFF. Replace micro since a p.s. with R and C mod is not available.	New micro- no OFF sw r/c	452
Yo8-tv11-ps	Tripped OFF. Replace micro since a p.s. with R and C mod is not available.	Already rev 14 No action taken	
Bi9-tv18-ps	Tripped on an Overvoltage, 3/9/03 00:14 but voltage and current looked very noisy. Check all AC and DC connections. Do not replace p.s. Record what was loose and tightened.	Tighten all magnet connections. Same problem as yi3-tv16 with ramp rates	

Ramp rates: 15 sec rate seems safe. Errors result from 1 through 5 sec rates, sometimes 10 sec. Errors predominately ramping negative high current through zero to high + current. Some supplies may be more sensitive to higher rates. -From Brian

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b.??
2. Check light control chassis at 10A because no green lights work. ??
3. Check light control chassis at 12A because no red light on yellow valve box. **Done**
4. Check green light above blue valve box in 1002B. ??
5. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. ??

Sextupole P.S.

1. yi7-sxd-ps tripped on a quench fault on 3/5/03 at 02:27. The setpoint, current, voltage and error glitched. Wfg was clean. Keep an eye on. This magnet string was already re-tightened once this year. **I have not seen this trip again so I am taking it off the list.**

ATR Power Supplies

1. Run X-ARC90 in voltage mode. **Nothing done.**
2. Test SWM p.s. setpoint buffer. **Nothing done.**
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon. **Nothing done.**
4. If ground fault comes back on WQ3 p.s. try something else. AFB board was replaced 9:50 Wed 3/5/03. **Nothing done.**
5. XARC90 and YARC90 phase sequence relay jumpered out. Decide what to do for fix. YARC90 phase sequence relay probably still good because LED lights. **Nothing done.**
6. Try ramping YARC90 with Costas, do we see spikes? **Nothing done.**

Maintenance Performed on 3/5/03

IR Power Supplies

1. Ice Ball Checks were done and a thermostat was replaced at O11Q12 By Rich C and Bob. Another ice ball was found at O10Q15D15 and this thermostat was bypassed. It must be replaced next time. We also think we found a bad heater that PK and an electrician must investigate and possibly replace at O10Q8D8.
2. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Nothing was done on this.
3. If time allows go around and start screwing in all cards in 3u chassis. 1012A and 1004B were started. Some more of 1004B was done here waist high.
4. More Q6 time constant testing. I moved current regulator card from b12-q6-ps to bi4-qd6-ps and it was stable. B12-q6-ps has Q6test3 modified current regulator card in it.
5. Possibly swap out firing card of y8-dh0-ps. Nothing was done here.
6. Check why b2-dh0-ps tripped to the OFF state, on 2/8/03. **No One.**
7. Inspect buildings 1004B, 1006B, 1008B 1012A for broken internal fans on stand alone dynapowers. 1010A and 1002B were checked. Nothing was done here.
8. Replaced power supplies bi4-tq5-ps and yo4-qf2-ps because of broken fans.
9. Measure Q7 DC cable resistance load – Done.

OPA Work

1. Replace all fan switches in bi8-qd2-qp. Done.
2. Replace D connector hardware for yo8-qd1-qp because we had an QLI that the timing resolver said was caused by either yo8-qd1-qp or yo8-qd1-ps. Done
3. Start replacing all QPA D connector hardware?? (b2-dh0-qp and yo8-qf8-qp done). Only yo8-qd1-qp was done.

Gamma-T Power Supplies

1. Go into alcoves and tighten AC connections of Gamma-T's in 3C, 7A, 7C, 9A. These were not done.

Snake and Spin rotator p.s. Work

1. More p.s. testing to high current. A lot was completed here but more to do.
2. Label the rest of the circuit breakers. Nothing was done here.
3. Keep an eye on bi8-rot3-1.4-ps. Wing tried to send it to 60A but only went to 57A. I did not see the problem but swapped out buffer card anyway. No problems were seen her so it is coming off the list.
4. Go and look at bi9-snk7-1.4-ps in the tunnel, alcove 9C. When you try to turn it on the current jumps up and then the power supply trips off. The DAC should be replaced because at zero setpoint the DAC puts out -3mV and the p.s. does not like it. A small positive offset at zero is better than a small negative offset.
5. Measured voltage and current of load of bi9-snk7-1.4-ps (0.0135 ohms), bi9-snk7-2.3-ps (0.0136 ohms), bo7-rot3-1.4-ps (0.0207 ohms), bo7-rot3-2.3-ps (0.02072 ohms). Will use this in model to try and improve time constant for rotators, they have more overshoot than snakes.

ATR Power Supplies

1. Run X-ARC90 in voltage mode. Nothing was done here.
2. Test SWM p.s. setpoint buffer. Nothing was done here.
3. Tom Nehring may swap circuit breakers 42 and 44, probably won't happen anytime soon. Nothing was done here.
4. Dropped DC cables on WQ3 and meggered magnet to 50V. Measured 20Mohms so we think the magnet is fine. After the last ground fault trip that WQ3 had the AFB board was swapped out 9:50 Wed 3/5/03 and the ground fault has not come back since so we will continue to monitor it. We did learn that the magnet meggers good up to 50v.

Corrector Power Supplies: See Table below

1. No one checked corrector p.s. fans in alcoves this time.

Corrector P.S.	Action (2/19/03) On all of these check AC connections and connections at the magnet.	Comments – What was really done-What was found	Serial Number
Bo3-tv5-ps	One broken fan. Replace p.s. Do this first since it is in alcove 3C.	Center rear fan dead. Also found not fully tightened 208AC terminal block connections. Most DC connections in that rack (r3c5) were loose.	Removed 183
Yo4-qs3-ps (do this first with Don)	Trips OFF. REPLACE p.s. Micro was replaced last maintenance day. Remove and look at OFF pb closely, give it to Jim O for inspection. We need to know why this p.s. trips OFF. Examine p.s. for other things that could cause it to trip OFF. Was the micro the correct REV???	Install s/n 143 which has a resistor and cap added to the internal OFF switch circuit. 208vac term block phase A main feed had broken screw. Cut and moved to adjacent terminal.	Removed 118
Bo7-oct2-ps	Trips OFF. Replace Micro.	Installed new rev14 microprocessor.	
Bi5-octd-ps	Trips OFF. Replace Micro.	Installed new rev14 microprocessor.	
Yi3-tv16-ps	Tripped on an error fault 2/28 at 9:01:13. Current jumped up. Low Priority, if you get to it replace whole p.s.	No action	

Valve Box Work

1. Need to replace flashers at top of valve boxes for 2b and 6b. Nothing done.
2. Check light control chassis at 10A because no green lights work. Nothing done.
3. Check light control chassis at 12A because no red light on yellow valve box. Nothing done.
4. Check green light above blue valve box in 1002B. Nothing done.
5. Light control chassis in 1008B needs to be fixed. Opto logic is reversed. Nothing done.
6. Ron and Viorel went to the tp of the 8b blue valve box and did some measurements for the new link box.

Maintenance Performed on 2/26/03

IR Power Supplies

1. Ice Ball Checks. Found one thermostat that had to be bypassed at O11Q12. Two other thermostats at IO9Q4 AND IO9Q5 were replaced.
2. Keep an eye on y2-dh0-ps and yo9-dh0-ps fiber optic interface cards. For now no work is scheduled. Nothing Done, will take off the list but will watch.
3. Go into all blue dhx and dh0 qpa's and tag controller cards. Tag should say that this controller card must be replaced only with a controller card that is labeled for a blue dhx or dh0 qpa. This was all done.
4. In the tunnel take a sample of green stuff from Power leads on magnets. We got the sample and will see if it is enough to have analyzed.
5. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. Not done, put on the list for next time.
6. If time allows go around and start screwing in all cards in 3u chassis. Rich K started 1004b and Mitch started 1012A, continue next maintenance day.
7. More Q6 time constant testing and finally installing final improvement of q6 time constant. Finished working on b12-q6-ps and have 2 possible solutions now we need to test them out on other p.s.'s and decide which one we want to use.
8. Swap out isoamp board for y8-dh0, SET UP JUMPERS CORRECTLY!! Next time (NOT THIS TIME) maybe try current regulator because of glitch on ramp on 2/1/03 at 21:12:11. This was done, the problem still appears to be there, we may try something else next time. S/N of board out = 880. S/N of Board in = 12480. S/N of p.s. = 982016
9. Check why b2-dh0-ps tripped to the OFF state, on 2/8/03. Not done, next time.
10. Replace broken fans in y12-q7-ps and b12-q7-ps. Main yellow and blue quad power supplies must be locked out for this. Done, they also found internal fans that were bad so next time we must go around and check inside of stand alone p.s.'s for fans broken. 1010A and 1002B stand alones were already checked.
11. y11-qd2-ps caused a QLI on 2/23/03, 12:28. The current and voltage were oscillating but the ref was clean. CAS replaced the current regulator card and then the whole p.s.. Check that the compensation on the TC board is correct. Done, looked good.

Dynapower Fan Replacement Work to Do: Joe and Rich C-DONE

Dynapower P.S. With Bad Fan	Problem	Comments	P.S. Serial Number
B12-q7-ps	Center Fan not working. Since you need to get into back you must lock out this p.s. and blue main quads.	-new fan spinning -building lighting is poor -3 of 4 scr fans were replaced.	980218
Y12-q7-ps	Rear Fan not working. Since you need to get into back you must lock out this p.s. and yellow main quads	-new fan is rotating	980223

Gamma-T Power Supplies **Gregg & Tom**

1. Solder wires in for bi5-qgt-ps because it tripped to the OFF state and also check if AC connections in terminal block are tight. If any others trip then check their AC connections too. If others do not trip then go around ring and check all AC connections on Gamma-T p.s.'s. **bi5-qgt was done and ac connections on all Gamma-T's were checked and tightened except alcoves 3c, 7a, 7c and 9a.**
2. Label any Gamma-T circuit breakers that have not been labeled yet. **Done.**

Main Power Supplies: **Fred & Carl**

1. The differential air vane switch for the blue main dipole ramp (or flattop) will be replaced. **Done**

Snake and Spin rotator p.s. Work: **George**

1. More p.s. testing to high current. **Some done, more to do.**
2. Label the rest of the circuit breakers. **Not Done**

ATR Power Supplies

1. Run X-ARC90 in voltage mode. **Not Done.**
2. Move Dranetz to Y-ARC90 **Done.**
3. Test SWM p.s. setpoint buffer if ready. **Not Done.**
4. Tom Nehring may swap circuit breakers 42 and 44. **Not Done.**

OPA D Connectors

1. Replace hardware with proper hardware so D connector is tight. **Not Done.**

Corrector Power Supplies

1. Controls must check MADC problem of yo8-qs3-ps because the iref is 2Amps lower than current. **Done, replaced cable to MADC card.**
2. See Table below for our work we did.

Corrector p.s. work to do –see table below: **Gene & Brian-DONE**

Corrector P.S.	Action (2/19/03) On all of these check AC connections and connections at the magnet.	Comments – What was really done-What was found	Serial Number
Bo3-qs3-ps	Measure iref and current into MADC's. If they both look good call controls because iref does not show up on pet page.	Iref lemo disconnected at MADC patch panel. Now ok	
Yo8-tv15-ps	Trips OFF, replace micro only	Micro replaced, now ok	
Yo5-dod3-ps	Trips OFF, replace micro only	Micro replaced, now ok	
Yo5-dec2-ps	Trips OFF, replace micro only	Micro replaced, now ok	
Yo4-qs3-ps	Trips OFF, replace micro only	Micro replaced, now ok	
Yo5-octd-ps	Had error trips.	Snugged all DC terminals on trees and ps trees and ps rear. Family included Q9,11,13,15,17	

Temperature Sensors

1. Install Temperature sensors on magnet trees near dump for test. Done, just need to hook up to electronics in 1010A service building.

Valve Box work

1. Re-installed all light control chassis's.

Maintenance Performed on 2/19/03

IR Power Supplies

1. If 6b yellow trips return then we may want to remove the permit module interface chassis again and replace it with one that has all LEMO connectors in it. **After a cable was replaced this never came back so it is coming off the maintenance list.**
2. Ice Ball Checking was performed. No more bad thermostats were found but PK replaced 2 thermostats from the last time checks were done. These were at 8Q20 and 9Q8.
3. Possible work on **y2-dh0-ps** and **yo9-dh0-ps** fiber optic interface cards. Check y2-dh0 in STBY with zero setpoint. Before f.o. card was modified analog out=0.6mV and Dac out =0.5mV. After cycling from OFF to STBY with unmodified f.o. card analog out=0mV and Dac out =0.6mV. After card was modified and re-installed analog out=0mV and Dac out =0.4mV. **yo9-dh0-ps** looks better after work on 2/6/03. See waveforms. **No Work was done to y2-dh0-ps and yo9-dh0-ps but we will continue to watch them.**
4. In 1006B keep an eye out for any trips of y6-dh0. We had one on Thurs 12/19 at around 11:56 pm due to voltage spike and we want to see if it comes back. Gregg reseated some hkps connectors and it has not come back since. **No work was done to this and the problem has not returned so this is coming off the maintenance list.**
5. In 1010A, if there is time we may want to check more tq power supplies for shorted IGBT's by looking at the AC current during a turn ON. **NO ONE.**
6. We tested another new time constant for q6 but it was stable only halfway up the ramp. **Don**
7. Possibly replace current regulator card for bi5-qd1-ps. Keep an eye on ramps. See ramp on 2/1/03 at 21:12:11 for glitch. **We did not do this and the p.s. looks fine so we will leave this off the list for next time.**
8. Replace current regulator card for y8-dh0-ps? See glitch during that caused QLI of 22:39:30 on 1/31/03. **We did not swap out current regulator card but Joe D and Ricg C swapped out hkps for y8-dh0-ps but voltage ripple problem still looks the same, next time swap out iso amp board**
9. bi9-qf7-ps current regulator card was replaced on 2/20/03.
10. bo7-tq4-ps current regulator card was swapped out.

Gamma-T Power Supplies:

1. bo10-qgt-ps , bi1-qgt-ps, yo12-qgt-ps, and yi10-qgt-ps all had wires soldered in for fuses.
2. In alcove 1C one of the Gamma-T's had its MADC connector repaired properly

Main Power Supplies: **CARL & FRED**

1. Work on PFN relay still. I think this was done.
2. No RESET from pet page required, tested and works.
3. Measure base crystal frequency of phase locked loops. This was done.
4. Yellow Main Dipole p.s. would not turn ON remotely, hardware problem that took some time to find and fix.

Snake & Spin Rotator Power Supply Work:

1. All power supplies were run up to 20Amps.

ATR Power Supplies

1. Nothing was done here.

Valve Box Work

1. All Light control chassis for warning lights at the top of valve boxes were removed for modification

OPA Work

1. b2-dh0-qp and yo8-qf8-qp had their D connector hardware replaced with the proper hardware.

Yellow Ring Ground Fault

1. George found ground fault in yellow ring. It was in sector 3.

6000A Quench Switch y9-d-qpsw in 1010A

1. Checked out quench switch connections on one of the two yellow quench switches because y9-d-qpsw.im6, it looked low and they tightened one connection very little but did not really find anything loose.

Dynapower Broken Fans on stand alone p.s.'s-see table below for what was done on 2/19/03

Dynapower P.S. With Bad Fan	Problem	Comments	P.S. Serial Number
B4-dhx-ps	Front right fan not working – this is ac compartment, just need to lock out this p.s. – even if fan is spinning replace it.	Small fan was replaced	980205
b-qtrim-ps	Large rear fan closest to the back not working- If you need to get into back you must lock out this p.s. and blue main quads	Done	980798
Y8-q7-ps	Small, top front left fan not working - this is ac compartment, just need to lock out this p.s. – even if fan is spinning replace it.	Done but blew FU6 Fuse. Fan wires in hkps loose and touching-see Rich C for more info.	980232
Yo9-dh0-ps	Small fan front not working – this is in ac compartment, just lock out this p.s., don't go into rear at all – George is hipotting yellow dipoles!!	Done	980214
Yo9-qd7-ps	Front fan was not spinning – in ac compartment, lock out just this p.s.	Done	980239

Corrector p.s. work that was done on 2/19/03 -see table below:

Corrector P.S.	Action (2/19/03) On all of these we checked AC connections and connections at the magnet.	Comments – What was really done-What was found	Serial Num- ber
Yi7-th3-ps	Replace Node card Cable and check chips on node card that were replaced, observe rest of node card, leave node card in.	Replaced cable, old left in place. Node card seems ok, visual check	
Yo1-qs-ps	Replace because it tripped to OFF state	Swapped out p.s.	538
Yo8-th14-ps	Tripped OFF, replace.	Replaced u in #449	
Yo5-octd-ps	Replace because it tripped to OFF state	Replaced p..s	97
Bi9-tv14-ps	Replace because it tripped to OFF state	Replaced u in #331	
Bo3-tv17-ps	Tripped OFF, replace.	Replaced p.s.	130
Bi9-tv16-ps	Tripped OFF, replace.	Replaced p.s.	463
Yi7-tv18-ps	Tripped OFF, replace	Replaced u in #416	
Yo4-th2-ps	Tripped OFF, replace	Replaced p.s.	495
Yo9-tv11-ps	Check Compensation is correct	Compensation ok	
Yo8-th2-ps	Check connections at p.s. and magnet, swap out p.s. if all tight.	Connections at magnet were tightened 2/13/03. Leave alone for now.	
Bo3-qs3-ps	Measure MADC signals into patch panels and compare with front of p.s. measurements	Controls found software problem with MADC settling time.	
Bo3-th2-ps	Measure MADC signals into patch panels and compare with front of p.s. measurement	Controls found software problem with MADC settling time.	
Bo3-th8-ps	Measure MADC signals into patch panels and compare with front of p.s. measurement	Controls found software problem with MADC settling time.	
Bo3-tv9-ps	Measure MADC signals into patch panels and compare with front of p.s. measurement	Controls found software problem with MADC settling time.	
Bo3-th4-ps	Measure MADC signals into patch panels and compare with front of p.s. measurement	Controls found software problem with MADC settling time.	
Bo3-tv10-ps	Measure MADC signals into patch panels and compare with front of p.s. measurement	Controls found software problem with MADC settling time.	
Yo8-th2-ps	Has broken L/R switch, swap out if there is enough time and spares LOW PRIORITY	Switch looks ok.	
Bi5-sx3-ps	Complaints of all Local pushbuttons not working, check out, if ok leave, if it is a problem swap it out if there is enough time and enough spares-LOW PRIORITY	Take off list. No remote problems right now and pb's were working after exercising them.	

Maintenance Performed on 1/29/03 to 1/30/03

IR Power Supplies

1. Ice Ball checking. Found 4 bad thermostats. They were all replaced. See Gregg's Logs for locations. I know one location was O9Q17.
2. In 1002B, y2-dh0-ps fiber optic interface card was modified with the 1 ohm resistor on the output of last op amp stage and the filtering on the input of the last op amp stage was modified. We must keep an eye on this now.
3. In 1010A yo9-dh0-ps fiber optic interface card was not modified correctly the first time. Instead of removing C7, C9 was removed. We went back and removed C7 and replaced C9. yo9-dh0-ps was running fine but now we must watch it and see if the 2Hz oscillation returns.
4. In 1012A the node card cable from bi12-tq6-ps to the node card was replaced with a longer one. We also swapped out the p.s. because of the false ESI problem. However the p.s. that replaced it was serial number 96. This came out of 1002B. It was removed because it would trip on an error fault after a few days of running. On the bench nothing could be found wrong with the p.s. It became a spare again and ended up in bi12-tq6-ps slot. After running a day we could not turn it on and it was giving an error fault. Bi12-tq6-ps was replaced again.
5. All of the blue dhx and dh0 synchronization boards were completely installed in the blue dhx and dh0 qpa's. They were tested successfully as well by ramping the p.s.'s to max energy and pressing the crash button. No Dx magnets quenched this time.
6. Reconnected Red Lead of 7DX magnet on magnet tree. This was one of the warm up heater power cables.
7. Tested new time constant for q6 current regulator card. Saw a little over 2x improvement in dynamic error. This test was done in b12-q6-ps. We left the modified card in there.
8. Qpa connectors on QPA and at p.s. were checked. They were tight at both ends. No need to tighten any further.

Spin Rotator Magnet Work

1. In the tunnel the wiring for the warm up heaters for the spin rotators was completed.

Corrector Power Supplies

1. The following corrector power supplies were swapped out: bo7-tv13-ps, bo6-octd-ps, yo8-th2-ps, yi7-th3-ps, yi11-th5-ps, bi8-octd-ps, bi1-th7-ps, bi12-tv4-ps, yo8-th8-ps, bo2-octf-ps, bi1-th11-ps, and yo1-tv5-ps. Most of these were swapped out because they tripped to the OFF state.

Gamma-T Power Supplies:

1. All Gamma-T p.s.'s had their slugs removed and replaced with 10A fuses. Bi4-qgt-ps and yo4-qgt-ps were the only ones that had wires soldered in.
2. Labeled Test Points on Power Chassis and cables to 3u chassis.
3. Labeled Circuit Breakers of most Gamma-T power supplies. Gregg knows which ones were not labeled.

Sextupole Power Supplies

1. In alcove 11B a circuit breaker panel cover was replaced properly by Costas and an electrician.

Main Power Supplies

1. New procedure for restoring mains tested. No need to press REG RESET button on output circuit compartment.

ATR Power Supplies

1. Swap Circuit Breakers 42 and 44 in 1000P substation. Not definite yet.
2. Run X-ARC90 in voltage mode.
3. Connected Dranetz to 3 lines that feed phase sequence relay. Phase sequence relay still jumpered out for XARC90.

Valve Box Work

1. Started Replacing warning lights with LED's on top of valve box but there was a problem with solid state relay feeding new LED's. This is being investigated.

1010A qpaic A1-A2

1. Checked k-locks on A1 to A2 qpaics in 1010A and found nothing wrong.

1006B quench detector work

1. Replaced cable between qd1 and qd2 quench detectors.

Timing Resolver

1. Tested new software in 1010A and installed it in all of the buildings and alcoves.

Wing &

Maintenance Performed on 1/15/03

IR Power supplies

1. One team went in and tightened connections on 3 sextupole p.s. magnet strings that needed to be re-tuned on the last maintenance day. Re-tuning was done on these three after tightening. The p.s.'s were yo1-sxd-ps, bi9-sxd-ps, and yi7-sxd-ps. **Gene, Brian**
2. Wing opened up a QPA and looked inside with Mitch for placement of new dhx/dh0 cards to synchronize QPA firing. **Mitch and Wing**
3. A new k-lock cable was installed from the permit module interface chassis to the qpaic to see if that would get rid of the unexplained yellow 6b trips. **Wing, Mitch and Rich K**
4. Two teams went through the ring checking for ice balls. They found 8 magnets in sector 12 that were suspicious. They were magnets Q17 through Q21. PK found a loose neutral wire connection to Q20 inner. Gregg tightened it up. This loose wire affected 8 magnets lead heaters. **Mitch, Jeff, Gregg, PK**
5. Possible work on y2-dh0, yi10-dh0 and yo9-dh0 regarding this fiber optic interface card problem. **Nothing Done**
6. Ed Weigand's guys went through and finished insulating the return gas line on the last ¼ of the ring. **Ed and his crew**
7. Keep an eye out for any trips of y6-dh0. We had one on Thurs 12/19 at around 11:56 pm due to voltage spike and we want to see if it comes back. Gregg reseated some hkps connectors and it has not come back since. Nothing done.
8. bi12-tq6-ps reported an ESI fault yet it is ON and running. They found a bad cable from the p.s. to the node card, it was replaced. **Joe and Tom.**
9. The following Gamma-T p.s.'s were checked because they dropped to the OFF state: yi11-qgt-ps, bo11-qgt-ps, yo12-qgt-ps, yi6-qgt-ps, bo3-qgt-ps, bo2-qgt-ps. Fuse slugs were found to be loose or starting to pop out of their holders. After these Gamma-T's were been checked we also checked these Gamma-T's that have not given us a problem yet: yi3-qgt-ps, bi4-qgt-ps, yo4-qgt-ps and bo6-qgt-ps. **Don, Gregg, Joe, Tom, Fred**
10. Costas removed Dranetz from alcove 11B.
11. Put current regulator jumper into E5-E6 on y2-q89-ps.

RHIC Main Dipole P.S.

1. PFN work was done since the resistors came in. **Fred**

ATR Power Supplies

1. Checked out problem with XARC90 Phase Sequence Relay. Phase sequence relay was bypassed on Sat 1/11/03. Voltages measured at phase sequence relay are 303.3Vrms, 304.7Vrms, and 303.4Vrms. These were measure on 1/13/03 around 10AM. We re-connected X-ARC90 phase sequence relay and it appears to be working fine. It may have failed on Sat 1/11/03 because of a loose wire or bad connection. We will continue to monitor it.

Maintenance Performed on 1/8/03

IR Power supplies

1. Replaced AC on light for a 200A p.s. in 1002B.
2. Swapped out y2-dh0-ps backplane with a new type backplane. This was done because of a possible fiber optic card problem.
3. Swapped out yi10-dh0 backplane with an old style backplane. This was done because of a possible fiber optic card problem. Gregg also found **the analog ground on the fiber optic card that feed the high precision readbacks was loose**. He fixed this. This could have been giving us bad measurements on the dmm. This must be checked out.
4. Costas took data off of Dranetz and left it down there one more week in alcove 11B to get more data.
5. Dan Oldham worked on the quench detection servers in 1004B.
6. Phil Pape swapped out the wfg for yi10-q89, bi12-tq6 and bi12-tq4 because AI was seeing I/O difference errors. It appears to be fixed for now.
7. Yi10-tq4, yi10-tq5 and yi10-tq6 were turned on and the AC current was measured. We were checking for shorted IGBT's. The data still has to be plotted but we did not see any signs of blown IGBT's from the measurements. Plots to follow shortly.
8. Wing did not find any problems with the cable connected to the permit module in 6b. He was checking this because of the unexplained yellow trips.
9. The PALS have all been replaced in the beam bypass permit chassis's so they are less sensitive to glitches from permit modules.
10. Wing checked the connections on the yellow quench switch terminal block that comes from the UPS and to the Modicon PLC.
11. Four teams were sent around to tighten all of the connections that had ice balls on them from last Saturday 1/4/03. See separate sheet for which magnet connections were tightened. Also, two teams tightened the magnet connections on yi11-sxd-ps, yi11-sxf-ps and bi1-sxd-ps. There are 12 magnets in each string. One team found I-10Q13 had a wire pull right out of terminal block of I-10Q13. This magnet was on yi11-sxf-ps. Another team found TB1 and TB10 loose on I-12Q7.
12. Ed Weigand's guys finished insulating $\frac{3}{4}$ of the rings return gas lines.
13. b2-dhx-ps had its current reg card replaced. Found it had a bad L/R switch.
14. After completing the maintenance we had the following problems: 1. bo3-qgt-ps had to be put into the OFF state and then back to STBY before we could get any output current, voltage and CAP voltage. 2. yi10-tq5-ps needed its current regulator card replaced because there was no "in remote" LED lit on the card. This was a bad L/R switch. 3. We had to swap out the aux contacts for yi10-qf3-ps because it failed on an error signal. 4. There was a power outage at 1004B that lasted about 30 minutes and the controls UPS went down. This caused an enormous amount of problems for us when we tried to turn back on because of all of the controls problems. Servers had to be re-started. The FEC that has the PLC/VME in it for the mains had to be re-started. The WFG's had to be restarted,

- etc.... It seems like the new UPS we installed for the QPA's, QPAIC's and Node Cards did not deplete its batteries.
15. Four sextupole p.s.'s needed to be retuned because the resistance of their loads changed by 0.01 ohms. These were bi1-sxd-ps, yo1-sxd-ps, bi9-sxd-ps and yi7-sxd-ps,

Main p.s.'s

1. Investigate PFN2 fault on blue main dipole p.s. **DONE**
2. Carl may investigate ACUV trip he had. **DONE**

ATR Line p.s.'s

1. Test PLC 5/25 in ATR line. **NOT NECESSARY**
2. CAS should lock out XARC90 and YARC90 so water group can move water flow switches to the outside of the 1MW p.s.'s. **DONE**